

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently Amended). ~~Targeted~~ A fused chimeric toxin-protein comprising a linear genetically engineered molecule consisting essentially of peptide bonds, produced by fusing, at the level of cDNA:

A. DNA encoding at least one cell targeting moiety ~~eneeding~~ consisting essentially of Met-GnRH or a Met-GnRH analog ~~recognizing that specifically binds to GnRH binding sites on Caco2 adenocarcinoma specific cells bearing gonadotropin-releasing hormone binding sites; and~~

B. DNA encoding at least one cell killing moiety ~~that kills specific cells bearing gonadotropin-releasing hormone binding sites, wherein the at least one cell targeting moiety consists essentially of gonadotropin-releasing hormone and the at least one cell killing moiety consists essentially of a cell killing toxin;~~

~~wherein said chimeric toxins bind directly to GnRH binding sites on adenocarcinoma cells, benign uterine leiomyoma cells, endometrial island cells and/or pituitary tumor adenoma cells; and~~

~~wherein said chimeric toxin is a linear protein consisting essentially of peptide bonds.~~

2 (Cancelled)

3 (Currently Amended). ~~Targeted-A~~ fused chimeric ~~toxin-protein~~ according to claim 1, produced by fusing at the cDNA level an oligonucleotide encoding ~~ten amino acids of a~~ gonadotropin releasing hormone (GnRH) or a GnRH analog, preceded by a Met, to a mutated DNA fragment of the full length *Pseudomonas* exotoxin *Pseudomonas* Exotoxin-(PE), encoding the protein Met-GnRH-PE66.

4 (Currently Amended). ~~Targeted-A~~ fused chimeric ~~toxin-protein~~ according to claim 1, produced by fusing at the cDNA level an oligonucleotide encoding ~~ten amino acids of a~~ gonadotropin releasing hormone (GnRH) or a GnRH analog, preceded by a Met, to a DNA fragment comprising domains II and III of the *Pseudomonas* exotoxin *Pseudomonas* Exotoxin-(PE), encoding the protein Met-GnRH-PE40.

5 (Currently Amended). A method for the production of a ~~targeted-chimeric toxin- protein~~ as defined in claim ~~1~~ 3, ~~wherein said chimera comprises GnRH-PE66,~~ comprising ligating an oligonucleotide encoding ~~ten amino acids of a~~ gonadotropin releasing hormone (GnRH) or a GnRH analog, preceded by a Met, upstream ~~to of~~ a DNA fragment encoding a mutated form of PE, under conditions sufficient to produce a ~~targeted-chimeric toxin- protein~~ comprising Met-GnRH-PE66.

6 (Currently Amended). A method for the production of ~~an adenocarcinoma cell targeted-a~~ chimeric ~~toxin-protein~~ as defined in claim ~~1~~ 4 that targets adenocarcinoma cells, ~~wherein said chimera comprises GnRH-PE40,~~ comprising ligating

an oligonucleotide encoding ~~ten amino acids of a gonadotropin releasing hormone (GnRH) or a GnRH analog, preceded by a Met,~~ upstream to a DNA fragment encoding domains II and III of the PE, under conditions sufficient to produce a ~~targeted~~-chimeric ~~toxin-protein~~ comprising Met-GnRH-PE40.

7 (Currently Amended). A composition useful for treatment in cancer therapy comprising as active ~~ingredients~~ ingredient, a chimeric ~~toxins~~ protein as defined in claim 1.

8 (Canceled)

9 (Currently Amended). A method for the treatment of adenocarcinoma or hepatocarcinoma ~~adenocarcinomas therapy~~ in a mammal, comprising administering to the body of a mammal in need of such therapy an effective amount of at least one chimeric ~~toxin~~ protein as defined in claim 1, sufficient to at least reduce the growth of said adenocarcinoma or hepatocarcinoma.

10 (Currently Amended). A method for adenocarcinoma or hepatocarcinoma therapy according to claim 9, further comprising wherein said administering step is by systemic administration of said chimeric-~~toxin~~ protein.

11-20 (Canceled)

21 (Currently Amended). A plasmid comprising a promoter operably linked to a DNA molecule encoding ~~targeted-a~~ fused chimeric ~~toxins~~ protein as defined in claim 1.

22 (Currently Amended). A method of treating a mammal having at least one adenocarcinoma or hepatocarcinoma, comprising administering to said mammal in need thereof, an

amount of a pharmaceutical composition, comprising a ~~targeted~~ chimeric ~~toxin-~~ protein as claimed in claim 1, sufficient to ameliorate the effects of said adenocarcinoma or hepatocarcinoma.

23 (Currently Amended). A method of treating a mammal having endometriosis, comprising administering to said mammal in need thereof, an amount of a pharmaceutical composition, comprising a ~~targeted~~ chimeric ~~toxin-~~ protein as claimed in claim 1, sufficient to ameliorate the effects of said endometriosis.

24 (Currently Amended). A method for ~~endometriosis~~ endometrioma therapy according to claim 23, further comprising ~~trans-trans~~-cervical washing of the mammal's endometrial cavity.

25 (Currently Amended). A method of treating a mammal having a uterine myoma, comprising administering to said mammal in need thereof, an amount of a pharmaceutical composition, comprising a ~~targeted~~ chimeric ~~toxin-~~ protein as claimed in claim 1, sufficient to ameliorate the effects of said uterine myoma.

26 (Currently Amended). A method of treating a mammal having a pituitary adenoma, comprising administering to said mammal in need thereof, an amount of a pharmaceutical composition, comprising a ~~targeted~~ chimeric ~~toxin-~~ protein as claimed in claim 1, sufficient to ameliorate the effects of said pituitary adenoma.

27 (Currently Amended). A method of treating a mammal having BPH, comprising administering to said mammal in need thereof, an amount of a pharmaceutical composition, comprising a ~~targeted~~-chimeric ~~toxin~~-protein as claimed in claim 1, sufficient to ameliorate the effects of said BPH.

28 (Currently Amended). A method of treating a mammal having polycystic breast disease, comprising administering to said mammal in need thereof, an amount of a pharmaceutical composition, comprising a ~~targeted~~-chimeric ~~toxin~~-protein as claimed in claim 1, sufficient to ameliorate the effects of said polycystic breast disease.

29 (Cancelled)

30 (Currently Amended). A ~~targeted~~-chimeric protein comprising a genetically engineered molecule comprising a fusion of-

at least one cell targeting moiety consisting essentially of a-gonadotropin releasing hormone (GnRH) preceded by a Met (Met-GnRH) or a Met-GnRH analog that specifically binds to GnRH binding sites on Caco2 adenocarcinoma; moiety, having up to 10 amino acid groups starting with Meth and having glycine as the sixth amino acid; and

at least one cell killing moiety ~~that kills specific cells bearing gonadotropin releasing hormone binding sites.~~

31 (Currently Amended). A fusion protein as claimed in claim 30, wherein said cell killing moiety comprises Pseudomonas exotoxin ~~Pseudomonas Exotoxin A.~~

32 (Currently Amended). A fusion protein as claimed in claim 30, that is a single protein.

33 (Currently Amended). A fusion protein as claimed in claim 30, that has no linking moiety between said cell killing moiety and said cell targeting moiety.

35 (Currently Amended). A fusion protein as claimed in claim 29, wherein said chimeric protein recognizes and/or binds to GnRH-binding sites on adenocarcinoma and hepatocarcinoma cells, ~~benign uterine leiomyoma cells,~~ ~~endometrial island cells and/or pituitary tumor adenoma cells.~~

36 (New). A fusion protein as claimed in claim 29, wherein said cell targeting moiety is a Met-GnRH analog having the sequence of Met-GnRH but having a glycine residue as the sixth amino acid of GnRH.